2021 F59 Commercial Chassis Specifications Dimensions

Wheelbase (in.)	158	178	208
GVWR (lbs.)	16,000	16,000	19,500
Description (in.)			
Front Overhang	37.4	37.4	37.4
Rear Overhang	106.0	106.0	106.0
Overall Length	301.4	321.4	351.4
Front Frame Width	41.4	41.4	41.4
Rear Frame Width	34.0	34.0	34.0
Tire Outside Width (Front)	90.5	90.5	90.5
Tire Outside Width (Rear Inner)	73.1	73.1	73.1
Tire Center Width (Rear)	73.0	73.0	73.0
Tire Outside Width (Rear Outer)	94.0	94.0	94.0
Frame Front Section Height	7.5	7.5	7.5
Frame Height @ Front Axle(1)	31.5	31.5	31.0
Frame Rear Section Height	9.2	9.2	9.2
Frame Height @ Rear Axle(1)	32.7	32.7	32.9

NOTE: Dimensions @ GVWR.

Wheelbase (in.)	158/168(2)	178/190	178(2)	208/208(2)
GVWR (lbs.)	19,500	19,500	22,000	22,000
Description (in.)				
Front Overhang	37.4	37.4	37.4	37.4
Rear Overhang	106.0	106.0	106.0	106.0
Overall Length	301.4/311.4	321.4/333.4	321.4	351.4
Front Frame Width	41.4	41.4	41.4	41.4
Rear Frame Width	34.0	34.0	34.0	34.0
Tire Outside Width (Front)	90.5/91.6	90.5	91.6	91.6
Tire Outside Width (Rear Inner)	73.1/67.8	73.1	67.8	72.8/67.8
Tire Center Width (Rear)	73.0	73.0	74.0	74.0
Tire Outside Width (Rear Outer)	94.0/90.7	94.0	90.7	94.0/90.7
Frame Front Section Height	7.5	7.5	7.5	7.5
Frame Height @ Front Axle(1)	31.0	31.0	31.3	31.3
Frame Rear Section Height	9.2	9.2	9.2	9.2
Frame Height @ Rear Axle(1)	32.9	32.9	33.4	33.4

(1) Dimensions are for reference only. Actual heights may vary due to product tolerances.

(2) Parcel Delivery Van Package only.

NOTE: Dimensions @ Stripped Chassis.

2021 F59 Commercial Chassis Specifications Weight Ratings

F59 Commercial Stripped Chassis – GVWR/Payload/GCWR & Trailer Weight/GAWR/Base Curb Weight

Drive/WB (in.)	Engine/ Transmission	Maximum GVWR (lbs.)	Maximum Payload[1] (lbs.)	Maximum GCWR/ Trailer Weight (lbs.)	GAWR[2] (lbs)		Base Curb Weight[3] (lbs.)		
					Front	Rear	Front	Rear	Total
4x2 — 158	7.3L/Auto	16,000	10,080	23,000/7,000	6,500	11,000	3,054	2,857	5,911
	7.3L/Auto	19,500	13,480	26,000/6,500	7,000	13,500	3,197	2,821	6,018
4x2 — 168[4]	7.3L/Auto	19,500	13,470	27,200/7,700	7,000	13,500	3,198	2,828	6,026
4x2 — 178	7.3L/Auto	16,000	10,050	23,000/7,000	6,500	11,000	3,191	2,754	5,945
	7.3L/Auto	19,500	13,460	26,000/6,500	7,000	13,500	3,198	2,835	6,033
	7.3L/Auto	22,000[4]	15,610	29,700/7,700	8,000	15,000	3,276	3,112	6,388
4x2 — 190	7.3L/Auto	19,500	13,400	26,000/6,500	7,000	13,500	3,209	2,887	6,096
4x2 — 208	7.3L/Auto	19,500	13,310	26,000/6,500	7,000	13,500	3,227	2,962	6,189
	7.3L/Auto	22,000	15,610	26,000/4,000	8,000	15,000	3,276	3,112	6,388
	7.3L/Auto	22,000[4]	15,610	29,700/7,700	8,000	15,000	3,276	3,112	6,388

(1) Load rating represents maximum allowable weight of people, cargo and body equipment and is reduced by optional equipment weight.

(2) Gross axle weight rating is determined by the rated capacity of the minimum component of the axle system (axle, springs, wheels, tires) of a specific vehicle. Front and rear GAWRs will, in all cases, sum to a number equal to or greater than the GVWR for the particular vehicle. Maximum loaded vehicle (including passengers, equipment and payload) cannot exceed the GVW rating or GAWR (front or rear).

(3) Base curb weights shown above consider the strip chassis weight with standard equipment, full fuel tank and all other fluids filled to capacity. Available equipment weights are in pounds as follows: (Front/Total): Pull Out Ramp Prep Package (available with 208" wheelbase only) (50/85)

(4) Parcel Delivery Van Package only.

2021 F59 Commercial Chassis Specifications Standard

Powertrain/Chassis Equipment Specifications

Drive:		**4x2**
POWERTRAIN:		
Engine	Application	50 states
	Type	7.3L PFI gas V8
Transmission	Type	TorqShift 6-speed automatic with tow/haul mode
	Speeds	6-speed overdrive
AXLES:		
Front Axle	Type	Forged steel I-beam
	Capacity (rating @ ground)	6,500 lbs. (16,000-lb GVWR) 7,000 lbs. (19,500-lb. GVWR) 8,000 lbs. (22,000-lb. GVWR)
	King pin angle	5.5º
	Caster angle	4.6º
Rear Axle	Type — Full-floating	Full-floating, Dana
	Capacity (rating @ ground)	11,000 lbs. (16,000-lb. GVWR), 13,500 lbs. (19,500-lb. GVWR) and 15,000 lbs. (22,000-lb. GVWR)
	Axle ratio	4.30 (16,000-lb. GVWR), 4.88 (19,500-lb. GVWR), 5.38 (22,000-lb. GVWR)
BRAKES:		
Front/Rear Disc	Type	Dual piston pin slider calipers, bolt-on adaptors
	Rotor diameter — front/rear	15.0"
Power Assist Unit	Type	Hydro Boost (16,000-lb. and 19,500-lb. GVWR); Hydro Max (19,500-lb. and 22,000-lb. GVWR)
Anti-lock System		4-wheel, 4-sensors/4-channel (16,000-lb. and 19,500-lb. GVWR); 4-wheel, 4-sensors/4-channel (22,000-lb. GVWR)
Parking Brake (Driveline Drum)		Trans-mounted, foot-operated, hand release; Parcel Delivery Package, hand-operated, hand release
ELECTRICAL:		
Alternator	Rating	210 amperes, 2,832 watts[(1)]
Battery	Type	Maintenance-free
	Rating	78 amp-hr., 750 CCA
EXHAUST SYSTEM:	Type	L.H. forward-of-rear-axle exhaust exit
FUEL TANK:	Location/capacity	Aft-of-rear-axle (left-hand side fuel fill)/40-gallon
STEERING:	Type	Power, TRW, TAS 40 gear (includes cooler)
	Ratio	18.4:1
	Wheel	17.5" diameter
SUSPENSION:		
Frame	Type	Ladder-type, single-channel, 36,000 psi steel; Parcel Delivery Package 50,000 psi steel
	Section modulus	9.46 cu. in.
Jounce Bumpers		Front, variable rate
Springs, Front	Type	Parabolic leaf spring, single-stage, constant rate
	Rating @ ground (min.)	Refer to weight ratings for usage and ratings

Springs, Rear	Type	Parabolic leaf spring, single-stage, constant rate
	Rating @ ground (min.)	Refer to weight ratings for usage and ratings
Shock Absorbers	Type/size (dia.)	Gas-pressurized (front and rear)/15.0 mm piston rod diameter. Sachs Twin-Tube
Stabilizer Bars		Front: Bar diameter 50.8 mm Rear: Bar diameter 35.0 mm
TIRES:	Type	Steel-belted radial, highway, BSW
	Size	Six, 225/70R19.5G (16,000-lb./19,500-lb. GVWR); six, 245/70R19.5G (22,000-lb. GVWR)(2)
WHEELS:	Type and size	Six, 10-hole disc, 19.5" x 6.0" (16,000-lb. and 19,500-lb. GVWR); six, 10-hole disc, 19.5" x 6.75" (22,000-lb. GVWR)(3)

(1) 210-amp output based on cold performance at 80º F. Actual output is temperature and application dependent.

(2) The 245 tire is included on the 19.5K Parcel Delivery Van Package chassis.

(3) The 19.5" x 16.75" wheel is included on the 19.5K Parcel Delivery Van Package chassis.

Specifications

Type		Forged I-beam
GVWR (lbs.)		16,000/19,500/22,000
Max. rating @ ground (lbs.)		6,500/7,000/8,000
Axle	Type	Monobeam
	Material	Forged steel
	Spring centers (in.)	41.87
Ball Joint		Zirked
Spindle	Material	Nodular cast-iron body with forged steel stem
Wheel Bearings	Type	Tapered roller

2021 F59 Commercial Chassis Specifications > Axles Rear Axle Specifications

GVWR (lbs.)		16,000	19,500	22,000
Make (standard)		Dana S110	Dana S110	Dana S130
Max. rating @ ground (lbs.)		11,000	13,500	15,000
Type		Full-floating		
Driveline attachment		1,480		
Housing	Type	Banjo, cast carrier		
	Cover attachment	Welded		
Section	Arm dimensions (in.)	4.33 x 4.26	4.33 x 4.26	4.33 x 4.26
Synthetic lubricant capacity (pts.) approximate with hubs		13.6	13.6	13.6
Spring centers (in.)		42.48	42.48 (41.73 narrow track axle)	42.48 (41.73 narrow track axle)
Wheel bearings	Type	Tapered roller		
Gears	Type	Hypoid		
	Material	Alloy steel		
Ring gear	Pitch dia. (in.)	12.2	12.2	12.2
Pinion	Mounting	Overhung		
Differential	Type	2-pinion	2-pinion	4-pinion
Axle shaft	Spline minor dia. (in.)	1.56	1.56	1.61
	Spline major dia. (in.)	1.75	1.75	1.85
	No. of splines (hub end)	34	34	36

2021 F59 Commercial Chassis Specifications > Brakes Hydraulic Brake Equipment Specifications — Front/Rear Disc

Type	Axle Usage (lbs.)	Rotor Diameter (in.)		Brake Lining Segment	Area (sq. in.)/ Width (in.)/ Thickness (in.)	Caliper Piston No. Dia. (in.)	Gross Lining Area per Axle (sq. in.)	Total Swept Area per Axle (sq. in.)
		OD	ID					
Front Disc	6,500	15.0	10.12	Outboard	20.4/2.32/0.49	Dual/2.60	81.6	366.6
				Inboard	20.4/2.32/0.49			
	7,000	15.0	10.12	Outboard	20.4/2.32/0.49	Dual/2.60	81.6	366.6
				Inboard	20.4/2.32/0.49			
	8,000	15.0	10.12	Outboard	20.4/2.32/0.49	Dual/2.60	81.6	366.6
				Inboard	20.4/2.32/0.49			
Rear Disc	11,000/13,500/ 15,000	15.0	10.12	Outboard	20.4/2.32/0.49	Dual/2.60	81.6	366.6
				Inboard	20.4/2.32/0.49			

2021 F59 Commercial Chassis Specifications > Brakes Brake Master Cylinder Specifications

Type	Usage	Bore Dia. (in.)
Dual system, dash-mounted	16,000-lb. GVWR/19,500-lb. GVWR Non-Parcel Delivery Van Package	1.63
	19,500-lb. Parcel Delivery Van Package/22,000-lb. GVWR	2.00

2021 F59 Commercial Chassis Specifications > Brakes Brake Booster Specifications

Make/Type	Usage	Booster Type	Boost Ratio
Dash-mounted	16,000-lb. GVWR/19,500-lb. GVWR Non-Parcel Delivery Van Package	Hydro Boost	8.19
	19,500-lb. Parcel Delivery Van Package/22,000-lb. GVWR	Hydro Max	21.1

2021 F59 Commercial Chassis Specifications > Cooling Systems Cooling System Specifications

Engine	Cooling	Trans. Usage	Radiator							Fan Specifications		
			Frontal Area (sq. in.)	Core Size (in.)			Rows of Tubes	Fins Per Inch	Cooling System Capacity qts. (liters)	In-Tank Trans Cooler	Type	No. of Blades	Blade Dia. (in.)
				Height	Width	Thick.							
7.3L PFI Gas V8	Std	6-Speed	857	28.4	30.19	1.42	91	17.8	5.9 (5.6)	Std	Engine Driven	9	20.3

2021 F59 Commercial Chassis Specifications > Cooling Systems Auxiliary Automatic Transmission Oil Cooler Applications

Engine	Transmission	Cooler — No. of Plates
7.3L PFI Gas V8	6-speed automatic overdrive	31

2021 F59 Commercial Chassis Specifications Engine

Driveline Layout	Front Engine, Rear Wheel (RWD)
Engine Type	**7.3L PFI Gas V8**
Displacement (liters/cu. in.)	7.3/445
Horsepower @ rpm	350 @ 3,900
Torque (lb.-ft.) @ rpm	468 @ 3900
Compression ratio	10.5:1
Valvetrain	OHV
Valve operation	Push rod/rocker Arms
Bore & stroke (in.)	4.21 x 3.98
Main bearings	5
Induction	Naturally aspirated
Fuel system	Port fuel injection
Fuel requirement (octane)	87 (min.)

2021 F59 Commercial Chassis Specifications Fuel System Data

Electronic Fuel Injection	Port fuel injection
Fuel Pump	Single electric-in-tank high pressure
Fuel Filter	In-tank large capacity (one)
Air Cleaner	Dry element, replaceable

2021 F59 Commercial Chassis Specifications Steering Specifications

Wheelbase (in.)	Power Steering[1]	Turning Diameter (ft.)
	Gear Ratio	Curb-to-Curb
158	18.4:1	45.4
178	18.4:1	49.7
190	18.4:1	52.2
208	18.4:1	56.1

(1) Power Steering Fluid Cooler is standard.

2021 F59 Commercial Chassis Specifications > Suspensions Frame Specifications

Wheelbase (in.)	No. of Crossmembers	Maximum Side Rail Section[1] (Height x Width x Thickness) (in.)	Section Modulus (cu. in.)	Yield Strength (psi)
158	8	9.16 x 3.00 x 0.25	9.46	36,000
168	8	9.16 x 3.00 x 0.25	9.46	50,000
178	8	9.16 x 3.00 x 0.25	9.46	36,000
178 (PDP)	8	9.16 x 3.00 x 0.25	9.46	50,000
190	8	9.16 x 3.00 x 0.25	9.46	36,000
208	9	9.16 x 3.00 x 0.25	9.46	36,000
208 (PDP)	9	9.16 x 3.00 x 0.25	9.46	50,000

(1) Measured to inside of metal.

NOTE: PDP = Parcel Delivery Package

2021 F59 Commercial Chassis Specifications > Suspensions Shock Absorber Specifications

Type	Usage	Front			Rear		
		No. Used	Piston Rod Dia. (mm.)	Type	No. Used	Piston Rod Dia. (mm.)	Type
Sachs Twin-Tube	Std.	2	15.0	Gas-pressurized	2	15.0	Gas-pressurized

2021 F59 Commercial Chassis Specifications > Suspensions Spring Specifications — Front Leaf

Combined Rating @ Ground (lbs.)	Number of Leaves	Total Thickness (in.)	Length (in.)	Width (in.)	Deflection Rate[1] (lbs. per in./spring)
6,500	2	2.73	63.0	4.0	510
7,000	2	2.73	63.0	4.0	585
8,000	2	2.73	63.0	4.0	585

(1) Single-stage, constant rate springs.

2021 F59 Commercial Chassis Specifications > Suspensions Spring Specifications — Rear Leaf

Combined Rating @ Ground (lbs.)	Number of Leaves	Total Thickness (in.)	Overall Length (in.)	Width (in.)	Deflection Rate[1] (lbs. per in./spring)
11,000	2	3.82	64.0	4.0	1,425
13,300 (PDP narrow axle)	3	6.86	64.0	3.0	2,146
13,500	3	3.08	64.0	4.0	2,150
15,000	3	3.08	64.0	4.0	2,150
15,000 (PDP narrow axle)	3	6.86	64.0	3.0	2,146

(1) Single-stage constant rate springs.

2021 F59 Commercial Chassis Specifications > Tires and Wheels Tire Specifications

Size	Tread Type & Sidewall	Tire Manufacturer	Rim Width (in.)	Section Width[1] (in.)	Ply/Load Rating	Inflation Press. (psi)	Load Limits @ Max. Inflation Press. (lbs.)	Static Loaded Radius (in.)	SAE Revolutions per Mile @ 45 mph
225/70Rx19.5	Highway-BSW	Bridgestone®	6.0	8.22	14/G	85–100[2]	3,640/3,490	14.96	647
225/70Rx19.5	Highway-BSW	Continental	6.0	TBA	14/G	95-100[2]	TBA	15.00	643
245/70Rx19.5 (incl. with Parcel Delivery Package [59P])	Highway-BSW	Goodyear®	6.75	9.94	12/G	95[2]	3,890/3,655	15.30	633

(1) Tire and rim maximum width.

(2) 16,000-lb. GVWR = 85 psi, 19,500-lb. GVWR = 95 psi (front) and 100 psi (rear).

2021 F59 Commercial Chassis Specifications > Tires and Wheels Wheel Specifications

Wheel Type	Wheel Size	Nominal Offset (in.)	No. of Studs	Bolt Circle mm (in.)	Max. Wheel Capacity Load (lbs. @ ground)
Steel	19.5" x 6.0" RW	5.35	10	225 (8.85)	3,750
Steel	19.5" x 6.75" RW	5.50	10	225 (8.85)	4,000

2021 F59 Commercial Chassis Specifications Automatic Transmission Specifications

Make/Type	6-Speed TorqShift Double Overdrive Automatic with Tow/Haul Mode
Ratios (to 1):	
1st	3.97
2nd	2.31
3rd	1.51
4th	1.14
5th	0.85
6th	0.67
Reverse	3.12
Converter torque ratio @ WOT stall	2.00
Fluid capacity (qts.)	19.0
Gear set	Helical
Oil cooler	Oil to air and in-tank
Oil filter	Internal
Converter size & type	12" PCM-controlled clutch apply